

## SEQUENCE LISTING

<110> Jindong Sun et al.

<120> Transgenic Plants

<130> 38-21 (52743) B

<150> US 60/449,054

<151> 2003-02-22

<160> 11

<170> PatentIn version 3.2

<210> 1

<211> 270

<212> PRT

<213> *Arabidopsis thaliana*

<400> 1

Met Glu Leu Asn Arg Ser Glu Ala Asp Glu Ala Lys Ala Glu Thr Thr

1            5            10            15

Pro Thr Gly Gly Ala Thr Ser Ser Ala Thr Ala Ser Gly Ser Ser Ser

20            25            30

Gly Arg Arg Pro Arg Gly Arg Pro Ala Gly Ser Lys Asn Lys Pro Lys

35            40            45

Pro Pro Thr Ile Ile Thr Arg Asp Ser Pro Asn Val Leu Arg Ser His

50            55            60

Val Leu Glu Val Thr Ser Gly Ser Asp Ile Ser Glu Ala Val Ser Thr  
65                70                75                80

Tyr Ala Thr Arg Arg Gly Cys Gly Val Cys Ile Ile Ser Gly Thr Gly  
                  85                90                95

Ala Val Thr Asn Val Thr Ile Arg Gln Pro Ala Ala Pro Ala Gly Gly  
                  100                105                110

Gly Val Ile Thr Leu His Gly Arg Phe Asp Ile Leu Ser Leu Thr Gly  
                  115                120                125

Thr Ala Leu Pro Pro Pro Ala Pro Pro Gly Ala Gly Gly Leu Thr Val  
                  130                135                140

Tyr Leu Ala Gly Gly Gln Gly Gln Val Val Gly Gly Asn Val Ala Gly  
145                150                155                160

Ser Leu Ile Ala Ser Gly Pro Val Val Leu Met Ala Ala Ser Phe Ala  
                  165                170                175

Asn Ala Val Tyr Asp Arg Leu Pro Ile Glu Glu Glu Glu Thr Pro Pro  
                  180                185                190

Pro Arg Thr Thr Gly Val Gln Gln Gln Gln Pro Glu Ala Ser Gln Ser  
                  195                200                205

Ser Glu Val Thr Gly Ser Gly Ala Gln Ala Cys Glu Ser Asn Leu Gln  
210 215 220

Gly Gly Asn Gly Gly Gly Gly Val Ala Phe Tyr Asn Leu Gly Met Asn  
225 230 235 240

Met Asn Asn Phe Gln Phe Ser Gly Gly Asp Ile Tyr Gly Met Ser Gly  
245 250 255

Gly Ser Gly Gly Gly Gly Gly Gly Ala Thr Arg Pro Ala Phe  
260 265 270

<210> 2

<211> 295

<212> PRT

<213> *Oryza sativa*

<400> 2

Met Glu His Ser Lys Met Ser Pro Asp Lys Ser Pro Val Gly Glu Gly  
1 5 10 15

Asp His Ala Gly Gly Ser Gly Ser Gly Gly Val Gly Gly Asp His Gln  
20 25 30

Pro Ser Ser Ser Ala Met Val Pro Val Glu Gly Gly Ser Gly Ser Ala  
35 40 45

Gly Gly Ser Gly Ser Gly Gly Pro Thr Arg Arg Pro Arg Gly Arg Pro  
50 55 60

Pro Gly Ser Lys Asn Lys Pro Lys Pro Pro Ile Ile Val Thr Arg Asp  
65                70                75                80

Ser Pro Asn Ala Leu His Ser His Val Leu Glu Val Ala Gly Gly Ala  
                  85                90                95

Asp Val Val Asp Cys Val Ala Glu Tyr Ala Arg Arg Arg Gly Arg Gly  
                  100                105                110

Val Cys Val Leu Ser Gly Gly Gly Ala Val Val Asn Val Ala Leu Arg  
                  115                120                125

Gln Pro Gly Ala Ser Pro Pro Gly Ser Met Val Ala Thr Leu Arg Gly  
                  130                135                140

Arg Phe Glu Ile Leu Ser Leu Thr Gly Thr Val Leu Pro Pro Pro Ala  
145                150                155                160

Pro Pro Gly Ala Ser Gly Leu Thr Val Phe Leu Ser Gly Gly Gln Gly  
                  165                170                175

Gln Val Ile Gly Gly Ser Val Val Gly Pro Leu Val Ala Ala Gly Pro  
                  180                185                190

Val Val Leu Met Ala Ala Ser Phe Ala Asn Ala Val Tyr Glu Arg Leu  
                  195                200                205

Pro Leu Glu Gly Glu Glu Glu Glu Val Ala Ala Pro Ala Ala Gly Gly  
210 215 220

Glu Ala Gln Asp Gln Val Ala Gln Ser Ala Gly Pro Pro Gly Gln Gln  
225 230 235 240

Pro Ala Ala Ser Gln Ser Ser Gly Val Thr Gly Gly Asp Gly Thr Gly  
245 250 255

Gly Ala Gly Gly Met Ser Leu Tyr Asn Leu Ala Gly Asn Val Gly Gly  
260 265 270

Tyr Gln Leu Pro Gly Asp Asn Phe Gly Gly Trp Ser Gly Ala Gly Ala  
275 280 285

Gly Gly Val Arg Pro Pro Phe  
290 295

<210> 3

<211> 230

<212> PRT

<213> *Gossypium hirsutum*

<400> 3

Ala Phe Gly Ser His Tyr Lys Leu Trp Arg Arg Ser Thr Thr Ser Gly  
1 5 10 15

Lys Lys Pro Arg Gly Arg Pro Ala Gly Ser Lys Asn Lys Pro Lys Ser

20                      25                      30

Pro Ile Ile Val Ala Arg Asp Ser Pro Asn Ser Leu Arg Ser His Val

35                      40                      45

Leu Glu Ile Ser Ser Gly Ser Asp Ile Val Asp Ser Val Trp Gly Tyr

50                      55                      60

Ala Arg Arg Arg Gly Arg Gly Val Cys Val Leu Ser Gly Thr Gly Ala

65                      70                      75                      80

Val Thr Asn Val Thr Leu Arg Gln Pro Ala Ala Pro Pro Gly Ser Val

85                      90                      95

Val Thr Leu His Gly Arg Phe Glu Ile Leu Ser Leu Thr Gly Thr Ser

100                      105                      110

Leu Pro Pro Pro Ala Pro Pro Gly Ala Gly Gly Leu Thr Val Tyr Leu

115                      120                      125

Ala Gly Val Gln Gly Gln Val Val Gly Gly Ser Val Val Gly Pro Leu

130                      135                      140

Met Ala Ser Gly Pro Val Val Leu Met Ala Ala Ser Phe Ala Asn Ala

145                      150                      155                      160

Val Tyr Asp Arg Leu Pro Leu Glu Glu Glu Asp Pro Pro Thr Val His

165                      170                      175

Glu Gln Gln Pro Ala Ala Ser Gln Ser Ser Gly Leu Thr Gly Ser Gly  
180 185 190

Gly Gly Asn Asn Asn Asn Cys Gly Thr Thr Gly Thr Gly Val Gly Gly  
195 200 205

Gly Gly Gly Gly Val Pro Phe Tyr Asn Leu Gly Pro Asn Met Gly Thr  
210 215 220

Tyr Pro Phe Pro Gly Leu  
225 230

<210> 4

<211> 974

<212> DNA

<213> Arabidopsis thaliana

<400> 4

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agccaccagc tcagccacag cctctggctc ttctccgga cgtcgtccac gtggtcgtcc 180

tgacggttcc aaaaacaac ccaaacctcc gacgattata actagagata gtcctaactg 240

ccttagatca cacgttctg aagtcacctc cggtcggac atatccgagg cagtctccac 300

ctacgccact cgtcgcggct gggcggttg cattataagc ggcacgggtg cggtcactaa 360

cgtcacgata cggcaacctg cggctccggc tggtgagggt gtgattaccc tgcattggtc 420

gtttgacatt ttgtctttga ccggtactgc gcttcaccg cctgcaccac cgggagcagg 480

aggtttgacg gtgtatctag ccggagggtca aggacaagtt gtaggaggga atgtggctgg 540

ttcgtaatt gcttcgggac cggtagtggt gatggctgct tctttgcaa acgcagttta 600

tgataggtta ccgattgaag aggaagaaac cccaccgccg agaaccaccg gggtcagca 660

gcagcagccg gaggcgtctc agtcgtcgga gggtacgggg agtggggccc aggcgtgtga 720

gtcaaaccct caaggtggaa atggtggagg aggtgttgct ttctacaatc ttggaatgaa 780

tatgaacaat ttcaattct ccggggggaga tatttacggt atgagcggcg gtagcggagg 840

agggtgtggc ggtgcgacta gacccgcgtt ttagagtttt agcgttttgg tgacacctt 900

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gcgaatatta gggt 974

<210> 5

<211> 1071

<212> DNA

<213> Oryza sativa

<400> 5

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catctgctcc gaccgcagca gccgtcgccg ctgtaccgc tgtcgccgac atcccatgtc 120

aagatggagc actccaagat gtcacccgac aagagccccg tgggcgaggg agatcacgcg 180

ggagggagtg gaagcggcgg cgtcggcggg gaccaccagc cgtcgtcgtc ggccatggtg 240

cccgctgagg gtggcagcgg cagcgcgggc ggtagtggct cgggtgggcc gacgcggcgc 300



ccgcgcgggc gcccgcccg gtccaagaac aagccgaagc cgcccatcat cgtgacgcgc 360  
 gacagcccga acgcgctgca ctgcacgtg ctgaggtcg ccggcggcgc cgacgtcgtc 420  
 gactgcgtgg ccgagtacgc ccgcccga gggcgcgcg tgtgcgtgct gagcggcggc 480  
 ggcgccgtcg tcaacgtggc gctgcggcag ccggcgcggt cgccgccggg cagcatggtg 540  
 gccacgtgc ggggccggtt cgagatccta tctctacgg gcacggtcct gccgcctccc 600  
 gcgccacccg gcgcgagcgg cctcaccgtg ttctctccg gcggccaggg ccaggtgatc 660  
 ggcggcagcg tggggggccc gctggtcgcc gcggggcccg tcgtcctgat ggcggcctca 720  
 ttgcgaacg ccgtgtacga gcggctgccg ctggaggcg aggaagagga ggtcgccgcg 780  
 cccgccccg gaggcgaagc acaagatcaa gtggcacaat cagctggacc ccagggcag 840  
 caaccggcg cgtcacagtc ctccggcgtg acaggaggcg acggcaccgg cggcgccggt 900  
 ggcatgtgc tctacaacct cgccgggaat gtggaggct atcagctccc cgagacaac 960  
 ttcgagggtt ggagcggcgc cggcgccggc ggagtcaggc caccgttctg acctatgtt 1020  
 tagcatccag ttcaaaaatt ctcaaatta agaattgcgc agtcagaag c 1071

<210> 6

<211> 693

<212> DNA

<213> *Gossypium hirsutum*

<400> 6

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ggacgtccag cgggatccaa gaacaagccg aatcaccca taatcgttc tcgcgacagt 120

ccgaactcgt tgagatccca cgtgctcgaa atctctccg gttcagacat agttgactcg 180  
 gtgtggggct acgcacggcg gcgcggccgt ggcgtttgtg tactcagcgg gaccggtgcc 240  
 gtcacgaatg tcacgttaag gcaaccggct gctccacctg gaagtgtcgt aacactacac 300  
 ggtcggttcg agattttatc ttaaccggg acttctctcc caccgccagc accgcctgga 360  
 gctggtggat tgacggttta tctcgccggc gttcaaggtc aagtagtcgg aggaagcgtg 420  
 gtgggaccgt taatggcttc aggtccagtc gtattaatgg ctgcatcgtt cgccaatgca 480  
 gtttacgata ggttacctct cgaagaagaa gaccaccaa ccgttcacga acaacaacca 540  
 gcagcttcac aatcatccgg attaacggc agtggcggcg gaaacaaca caactgtgga 600  
 acaaccggaa ccggcgtagg cggcggcggc ggcgggggtc cttctataa ttgggacca 660  
 aacatgggaa cttatccatt tccaggatta tga 693

<210> 7

<211> 99

<212> PRT

<213> Arabidopsis thaliana

<400> 7

Ala Lys Pro Pro Ile Ile Val Thr Arg Asp Ser Pro Asn Ala Leu Arg

1 5 10 15

Ser His Val Leu Glu Val Ser Pro Gly Ala Asp Ile Val Glu Ser Val

20 25 30

Ser Thr Tyr Ala Arg Arg Gly Arg Gly Val Ser Val Leu Gly Gly  
35 40 45

Asn Gly Thr Val Ser Asn Val Thr Leu Arg Gln Val Val Thr Leu His  
50 55 60

Gly Arg Phe Glu Ile Leu Ser Leu Thr Gly Thr Val Leu Pro Pro Pro  
65 70 75 80

Ala Pro Pro Gly Ala Gly Gly Leu Ser Ile Phe Leu Ala Gly Gly Gln  
85 90 95

Gly Gln Val

<210> 8

<211> 99

<212> PRT

<213> Arabidopsis thaliana

<400> 8

Pro Lys Pro Pro Thr Ile Ile Thr Arg Asp Ser Pro Asn Val Leu Arg  
1 5 10 15

Ser His Val Leu Glu Val Thr Ser Gly Ser Asp Ile Ser Glu Ala Val  
20 25 30

Ser Thr Tyr Ala Thr Arg Arg Gly Cys Gly Val Cys Ile Ile Ser Gly  
35 40 45

Thr Gly Ala Val Thr Asn Val Thr Ile Arg Gln Val Ile Thr Leu His  
50 55 60

Gly Arg Phe Asp Ile Leu Ser Leu Thr Gly Thr Ala Leu Pro Pro Pro  
65 70 75 80

Ala Pro Pro Gly Ala Gly Gly Leu Thr Val Tyr Leu Ala Gly Gly Gln  
85 90 95

Gly Gln Val

<210> 9

<211> 107

<212> PRT

<213> Gossypium hirsutum

<400> 9

Pro Lys Ser Pro Ile Ile Val Ala Arg Asp Ser Pro Asn Ser Leu Arg  
1 5 10 15

Ser His Val Leu Glu Ile Ser Ser Gly Ser Asp Ile Val Asp Ser Val  
20 25 30

Trp Gly Tyr Ala Arg Arg Arg Gly Arg Gly Val Cys Val Leu Ser Gly  
35 40 45

Thr Gly Ala Val Thr Asn Val Thr Leu Arg Gln Pro Ala Ala Pro Pro  
50 55 60

Gly Ser Val Val Thr Leu His Gly Arg Phe Glu Ile Leu Ser Leu Thr  
65 70 75 80

Gly Thr Ser Leu Pro Pro Pro Ala Pro Pro Gly Ala Gly Gly Leu Thr  
85 90 95

Val Tyr Leu Ala Gly Val Gln Gly Gln Val Val  
100 105

<210> 10

<211> 109

<212> PRT

<213> Oryza sativa

<400> 10

Pro Lys Pro Pro Ile Ile Val Thr Arg Asp Ser Pro Asn Ala Leu His  
1 5 10 15

Ser His Val Leu Glu Val Ala Gly Gly Ala Asp Val Val Asp Cys Val  
20 25 30

Ala Glu Tyr Ala Arg Arg Arg Gly Arg Gly Val Cys Val Leu Ser Gly  
35 40 45

Gly Gly Ala Val Val Asn Val Ala Leu Arg Gln Pro Gly Ala Ser Pro  
50 55 60

Pro Gly Ser Met Val Ala Thr Leu Arg Gly Arg Phe Glu Ile Leu Ser  
65                70                75                80

Leu Thr Gly Thr Val Leu Pro Pro Pro Ala Pro Pro Gly Ala Ser Gly  
                  85                90                95

Leu Thr Val Phe Leu Ser Gly Gly Gln Gly Gln Val Ile  
              100                105

<210> 11

<211> 108

<212> PRT

<213> Artificial

<220>

<223> Synthetic sequence

<220>

<221> misc\_feature

<222> (1)..(1)

<223> Xaa is Alanine or Proline

<220>

<221> misc\_feature

<222> (3)..(3)

<223> Xaa is Proline or Serine

<220>

<221> misc\_feature

<222> (5)..(5)

<223> Xaa is Isoleucine or Threonine

<220>

<221> misc\_feature

<222> (7)..(8)

<223> Xaa is Valine or Isoleucine at position 7 and is Threonine or Alanine at position 8

<220>

<221> misc\_feature

<222> (14)..(14)

<223> Xaa is Alanine or Valine or Serine

<220>

<221> misc\_feature

<222> (16)..(16)

<223> Xaa is Arginine or Histidine

<220>

<221> misc\_feature

<222> (22)..(24)

<223> Xaa is Valine or Isoleucine at position 22 and is Serine or Threonine or Alanine at position 23 and is Proline or Serine or Glycine at position 24

<220>

<221> misc\_feature

<222> (26)..(26)

<223> Xaa is Alanine or Serine

<220>

<221> misc\_feature

<222> (28)..(31)

<223> Xaa is Isoleucine or Valine at position 28 and is Valine or Serine at position 29 and is Glutamic Acid or Aspartic Acid at position 30 and is Serine or Alanine or Cysteine at position 31

<220>

<221> misc\_feature

<222> (33)..(34)

<223> Xaa is Serine or Tryptophan or Alanine at position 33 and is Threonine or Glycine or Glutamic Acid at position 34

<220>

<221> misc\_feature

<222> (37)..(37)

<223> Xaa is Arginine or Threonine

<220>

<221> misc\_feature

<222> (41)..(41)

<223> Xaa is Arginine or Cysteine

<220>

<221> misc\_feature

<222> (44)..(47)

<223> Xaa is Serine or Cysteine at position 44 and is Valine or Isoleucine at position 45 and is Leucine or Isoleucine at position 46 and is Glycine or Serine at position 47

<220>

<221> misc\_feature

<222> (49)..(49)

<223> Xaa is Asparagine or Threonine or Glycine

<220>

<221> misc\_feature

<222> (51)..(51)

<223> Xaa is Threonine or Alanine

<220>

<221> misc\_feature

<222> (53)..(53)

<223> Xaa is Serine or Threonine or Valine

<220>

<221> misc\_feature

<222> (56)..(57)



<223> Xaa is Threonine or Alanine at position 56 and is Leucine or Isoleucine at position 57

<220>

<221> misc\_feature

<222> (60)..(68)

<223> Xaa can be any naturally occurring amino acid or can be none

<220>

<221> misc\_feature

<222> (70)..(70)

<223> Xaa is Valine or Isoleucine or Alanine

<220>

<221> misc\_feature

<222> (73)..(73)

<223> Xaa is Histidine or Arginine

<220>

<221> misc\_feature

<222> (77)..(77)

<223> Xaa is Glutamic Acid or Aspartic Acid

<220>

<221> misc\_feature

<222> (85)..(85)

<223> Xaa is Valine or Alanine or Serine

<220>

<221> misc\_feature

<222> (95)..(95)

<223> Xaa is Glycine or Serine

<220>

<221> misc\_feature

<222> (98)..(100)

<223> Xaa is Serine or Threonine at position 98 and is Isoleucine or Valine at position 99  
and is Phenylalanine or Tyrosine

<220>

<221> misc\_feature

<222> (104)..(104)

<223> Xaa is Glycine or Valine

<400> 11

Xaa Lys Xaa Pro Xaa Ile Xaa Xaa Arg Asp Ser Pro Asn Xaa Leu Xaa

1 5 10 15

Ser His Val Leu Glu Xaa Xaa Xaa Gly Xaa Asp Xaa Xaa Xaa Xaa Val

20 25 30

Xaa Xaa Tyr Ala Xaa Arg Arg Gly Xaa Gly Val Xaa Xaa Xaa Xaa Gly

35 40 45

Xaa Gly Xaa Val Xaa Asn Val Xaa Xaa Arg Gln Xaa Xaa Xaa Xaa Xaa

50 55 60

Xaa Xaa Xaa Xaa Val Xaa Thr Leu Xaa Gly Arg Phe Xaa Ile Leu Ser

65 70 75 80

Leu Thr Gly Thr Xaa Leu Pro Pro Pro Ala Pro Pro Gly Ala Xaa Gly

85 90 95

Leu Xaa Xaa Xaa Leu Ala Gly Xaa Gln Gly Gln Val

100 105

<210> 12

<211> 1473

<212> DNA

<213> *Arabidopsis thaliana*

<400> 12

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atgcaaagaa gaagctactt ctttctcttg ccctaattaa tctacctaac tagggtttcc 120

tcttacctt catgagagag atcatttaac ataagtcacc tttttatat ctttgcttc 180

gtctttaatt tagttctgtt cttggctgtt ttctatatt tgcggcttg cgtaaccgat 240

cacaccttaa tgcttagct attgttcct caaaatcatg agtttgact tctcgatctg 300

agtttcttt ttctctctt acgctcttct tcacctagct accaatatat gaacgagcag 360

gatcaagaat cgagaaattg atttgagctg gcgaataagc agtggaggga tagggaatta 420

gtagatgcgg cggcgatgga aggcggttac gagcaaggcg gtggagcttc tagatacttc 480

cataacctct ttagaccgga gattcaccac caacagcttc aaccgcaggg cgggatcaat 540

cttatcgacc agcatcatca tcagcaccag caacatcaac aacaacaaca accgtcggat 600

gattcaagag aatctgacca ttcaaacaaa gatcatcatc aacagggctg acccgattca 660

gacccgaata catcaagctc agcaccggga aaacgtccac gtggacgtcc accaggatct 720

aagaacaaag ccaagccacc gatcatagta actcgtgata gcccacacgc gcttagatct 780

cacgttcttg aagtatctcc tggagctgac atagttgaga gtgtttccac gtacgctagg 840

aggagagggg gaggcgtctc cgtttagga ggaaacggca ccgtatctaa cgtcactctc 900

cgtcagccag tcactcctgg aaatggcggg ggtgtgtccg gaggaggagg agttgtgact 960

ttacatggaa ggtttgagat tcttcgcta acggggactg tttgccacc tctgcaccg 1020

cctggtgccg gtggtttgtc tatatttta gccggagggc aaggtcaggt ggtcggagga 1080

agcgttgtgg cccccctat tgcacagct ccggttatac taatggcggc ttcgttctca 1140

aatgcgggtt tcgagagact accgattgag gaggaggaag aagaaggagg tggaggcgga 1200

ggaggaggag gaggagggcc accgcagatg caacaagctc catcagcatc tccgccgtct 1260

ggagtgaccg gtcagggaca gtaggaggt aatgtgggtg gttatgggtt ttctggtgat 1320

cctcattgc ttgatgggg agctggaaca cctcaagac cacctttta attgaatttt 1380

aatgtccgga aatttatgtg ttttatcat ctgaggagt cgtcttctt ttgggatatt 1440

tgggttttaa tgtttagttg atatcatat ttt 1473